APPENDIX 2: Data of EMI test

Radiated Emission below 30MHz (Fundamental and Spurious Emission)

DATA OF RADIATED EMISSION TEST

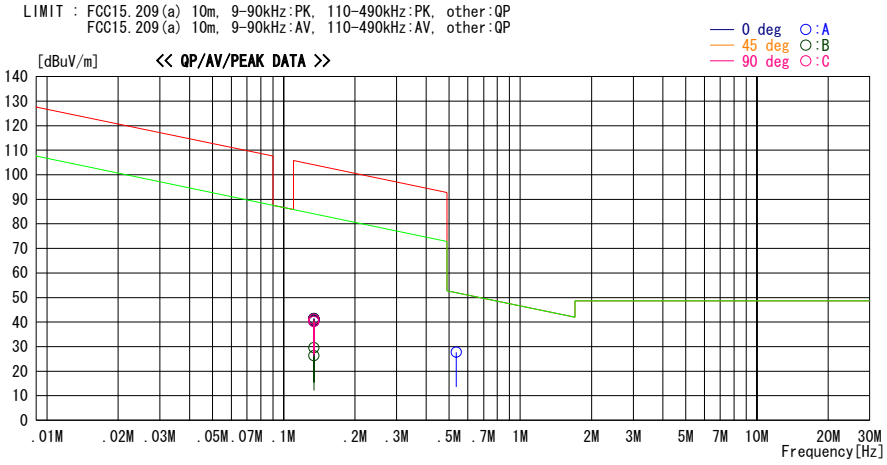
UL Japan, Inc. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2010/07/22

Report No. : 30KE0286-HO-01

Temp./ Humi. : 23deg.C. / 70%
Engineer : Keisuke Kawamura

Mode / Remarks : Tx 134.2kHz Worst axis X With key

LIMIT : FCC15.209(a) 10m, 9-90kHz:PK, 110-490kHz:PK, other:QP
FCC15.209(a) 10m, 9-90kHz:AV, 110-490kHz:AV, other:QP



Freq. [MHz]	Reading [dBuV]	DET	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Antenna [deg]		Table [deg]	Comment
0.13420	47.9	PEAK	20.0	6.0	32.4	41.5	104.1	62.6	0	A	2	Worst
0.13420	47.8	PEAK	20.0	6.0	32.4	41.4	104.1	62.7	45	B	322	
0.13420	47.6	PEAK	20.0	6.0	32.4	41.2	104.1	62.9	90	C	283	
0.13420	47.2	AV	20.0	6.0	32.4	40.8	84.1	43.3	0	A	2	Worst
0.13420	47.5	PEAK	20.0	6.0	32.4	41.1	104.1	63.0	135	A	2	
0.13420	46.7	AV	20.0	6.0	32.4	40.3	84.1	43.8	135	A	2	
0.13420	47.7	PEAK	20.0	6.0	32.4	41.3	104.1	62.8	180	A	359	
0.13420	46.8	AV	20.0	6.0	32.4	40.4	84.1	43.7	180	A	359	
0.13420	47.1	AV	20.0	6.0	32.4	40.7	84.1	43.4	45	B	322	
0.13420	36.0	PEAK	20.0	6.0	32.4	29.6	104.1	74.5	0	B	359	Hori
0.13420	32.7	AV	20.0	6.0	32.4	26.3	84.1	57.8	0	B	359	Hori
0.13420	46.6	AV	20.0	6.0	32.4	40.2	84.1	43.9	90	C	283	
0.53680	33.9	QP	19.8	6.1	32.1	27.7	52.0	24.3	0	A	359	

CHART: WITH FACTOR , ANT TYPE: LOOP , Except for the data below : adequate margin data below the limits.
CALCULATION : RESULT[dBuV] = READING[dBuV] + ANT FACTOR[dB] + LOSS[dB](CABLE + ATTEN.- AMP.)

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission above 30MHz (Spurious Emission)

DATA OF RADIATED EMISSION TEST

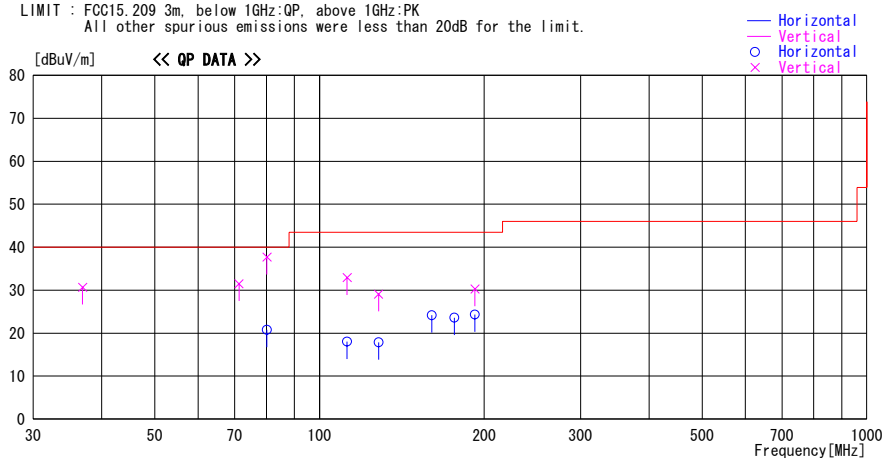
UL Japan, Inc. Head Office EMC Lab. No.2 Anechoic Chamber
Date : 2010/07/16

Report No. : 30KE0286-HO-01

Temp./Humi. : 21deg.C. / 68%
Engineer : Keisuke Kawamura

Mode / Remarks : Tx 134.2KHz Worst axis (Hori: X, Vert: Z) With Key

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss& Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
36.911	36.5	QP	16.1	-21.9	30.7	250	100	Vert.	40.0	9.3	
71.261	45.8	QP	7.0	-21.3	31.5	208	100	Vert.	40.0	8.5	
80.157	51.9	QP	7.0	-21.2	37.7	212	100	Vert.	40.0	2.3	
80.154	35.0	QP	7.0	-21.2	20.8	147	204	Hori.	40.0	19.2	
112.348	26.5	QP	12.5	-21.0	18.0	315	143	Hori.	43.5	25.5	
112.348	41.4	QP	12.5	-21.0	32.9	221	100	Vert.	43.5	10.6	
128.244	35.6	QP	14.2	-20.7	29.1	158	100	Vert.	43.5	14.4	
128.244	24.4	QP	14.2	-20.7	17.9	233	168	Hori.	43.5	25.6	
160.311	28.4	QP	16.1	-20.3	24.2	93	129	Hori.	43.5	19.3	
176.349	27.1	QP	16.6	-20.1	23.6	291	100	Hori.	43.5	19.9	
192.363	33.0	QP	17.2	-19.9	30.3	208	100	Vert.	43.5	13.2	
192.363	27.0	QP	17.2	-19.9	24.3	321	100	Hori.	43.5	19.2	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

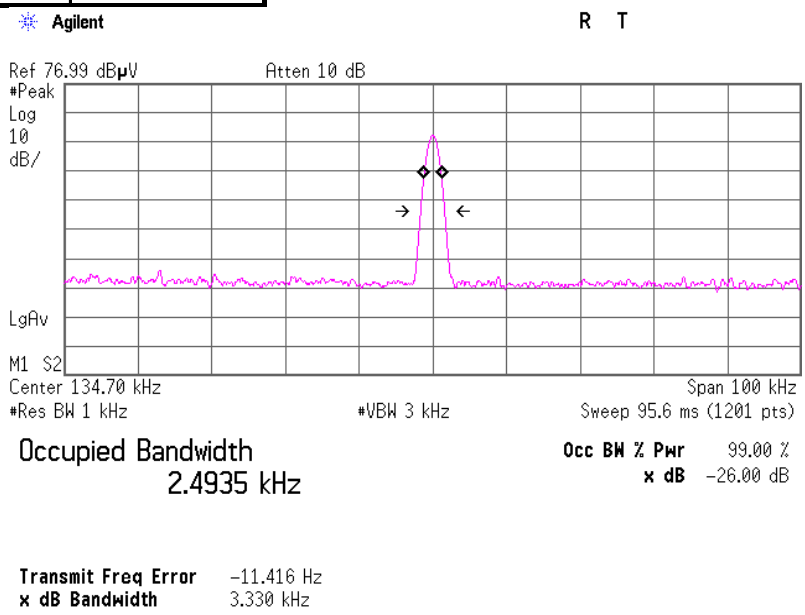
*The test result is rounded off to one or two decimal places, so some differences might be observed.

-26dB Bandwidth

UL Japan, Inc.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

REPORT NO : 30KE0286-HO-01
DATE : 07/22/2010
TEMPERATURE : 22 deg.C
HUMIDITY : 32 %
Engineer : Keisuke Kawamura
MODE : Tx 134.2kHz

FREQ [kHz]	-26dB Bandwidth [kHz]
134.7	3.330

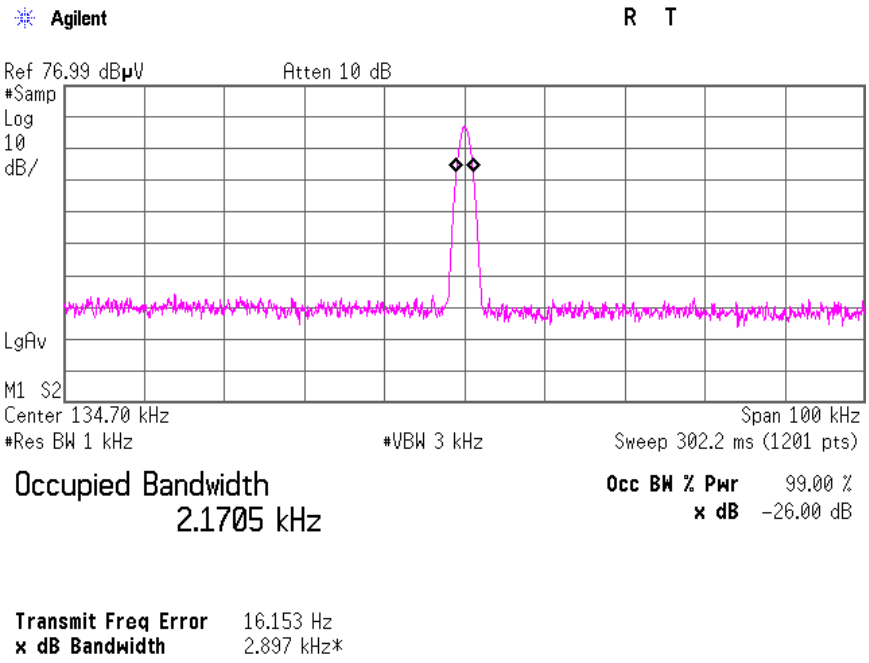


99% Occupied Bandwidth

UL Japan, Inc.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

REPORT NO : 30KE0286-HO-01
DATE : 07/22/2010
TEMPERATURE : 22 deg.C
HUMIDITY : 32 %
Engineer : Keisuke Kawamura
MODE : Tx 134.2kHz

FREQ [kHz]	99% Occupied Bandwidth [kHz]
134.7	2.171



Transmit Freq Error 16.153 Hz
x dB Bandwidth 2.897 kHz*

APPENDIX 3: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2009/08/17 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2010/02/09 * 12
MJM-05	Measure	PROMART	SEN1955	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MSA-03	Spectrum Analyzer	Agilent	E4448A	MY44020357	RE	2009/11/20 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE	2010/04/19 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	VHA91032008	RE	2009/10/05 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	201	RE	2010/06/12 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2010/02/22 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2009/11/12 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2009/09/02 * 12
MAEC-01	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	RE	2010/07/02 * 12
MOS-01	Digital Humidity Indicator	N.T	NT-1800	MOS01	RE	2010/02/09 * 12
MJM-01	Measure	KDS	ES19-55	-	RE	-
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	100084	RE	2009/12/17 * 12
MLPA-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	836553/009	RE	2009/11/19 * 12
MCC-31	Coaxial cable	UL Japan	-	-	RE	2010/07/20 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W(20m)/3D-2W(7.5m)/RG400u(1.5m)/RFM-E421(Switcher)	-/01068(Switcher)	RE	2010/01/05 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2010/03/23 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2009/11/12 * 12

The expiration date of the calibration is the end of the expired month.
All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

Test Item:
RE: Spurious emission